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OCT 18 1993
S A DDRAFT FINDING OF NO SIGNIFICANT
LOWRY AIR FORCE BASE REALIGNMENT
September 1989

The Base Closure Act, Public Law 100-526, directs the Secretary of Defense to close and realign all military installations recommended by the Commission on Realignment and Closure. As a result of the Commission's recommendations, Chanute Air Force Base, Illinois, will close, and a portion of its training mission will be transferred to Lowry Air Force Base, Colorado. Implementation of the realignment will require the construction of additional facilities at Lowry AFB.

In accordance with the Council on Environmental Quality's Regulations for Implementing the Procedural Provisions of NEPA (40 CFR 1500-1508) and Air Force regulation AR 19-2, an Environmental Assessment (EA) was conducted to evaluate the potential impacts of the proposed action. This EA is incorporated herein by reference and was prepared for the purposes of compliance with the National Environmental Policy Act. Compliance with other environmental review requirements is also addressed in the EA.

The EA concludes that the proposed action will result in minor, temporary effects on vegetation and wildlife. No threatened or endangered species would be affected. There would be no effects on aquatic resources, wetlands, and water quality. Air quality impacts would not be significant. None of the proposed construction would affect sites on the National Register of Historic Places; however, the entire base itself may be found to be eligible for the National Register, and the proposed actions may affect a historic district. The socioeconomic effects would be insignificant.

It is my finding that the proposed activities do not constitute a major Federal action significantly affecting the human environment. Therefore, an Environmental Impact Statement will not be required.

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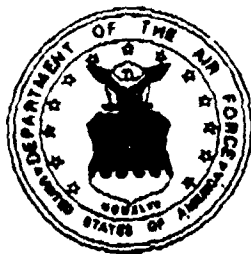
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**DRAFT ENVIRONMENTAL ASSESSMENT FOR
LOWRY AIR FORCE BASE REALIGNMENT
Prepared by U.S. Army Corps of Engineers, Omaha
September 1989**

DESCRIPTION OF AND NEED FOR PROPOSED ACTION

INTRODUCTION

The Base Closure Act, Public Law 100-526, directs the Secretary of Defense to close and realign all military installations recommended by the Commission on Base Realignment and Closure. As a result of the Commission's recommendations, Lowry Air Force Base, Colorado, will absorb an additional training mission due to the closure of Chanute Air Force Base in Illinois.

This Environmental Assessment has been conducted in order to comply with the National Environmental Policy Act (NEPA) of 1969 (Public Law 91-190), which requires Federal agencies to evaluate and disclose the environmental impacts of a proposed Federal action. The EA was prepared in accordance with the Council on Environmental Quality's Regulations for Implementing the Procedural Provisions of NEPA (40 CFR 1500-1508) and Air Force Regulation 19-2, Environmental Impact Analysis Process. Procedural requirements of other pertinent environmental legislation, including the Endangered Species Act, the Fish and Wildlife Coordination Act, and the National Historic Preservation Act, are also addressed and compliance status is documented.

Only the effects of the additional mission at Lowry AFB are addressed in this assessment. The effects of the closure of Chanute AFB are being addressed in a separate document.

As provided for in the Base Closure Act, the need, purpose, or reason for the realignment does not have to be addressed in the NEPA document. Therefore, the purpose of the action is addressed only to the extent necessary for an understanding of the proposed project. A detailed description of the project is presented in the next section, Alternatives Including the Proposed Action.

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SCOPING

Prior to the preparation of this document and the information and analyses herein, a letter was sent to potentially interested agencies and entities requesting comments on the scope of the assessment studies. Comments were requested from the U.S. Environmental Protection Agency, U.S. Fish and Wildlife Service, Colorado Division of Wildlife, Colorado Department of Natural Resources, Colorado Department of Health, City and County of Denver, City of Aurora, Denver Regional Council of Governments, Randolph AFB, TX, and Lowry AFB.

Responses were received from two addressees. Copies of these responses are presented in Attachment A.

The U.S. Environmental Protection Agency commented that based on the type of construction/reconstruction planned and the proposed location of these facilities, it was not aware of any special resources that would be affected by the proposed realignment. However, it stated that in the event any nonstandard construction methods are used or the training facilities would produce wastes requiring special handling, the Environmental Assessment would need to adequately discuss possible impacts and proposed mitigation.

A letter from Lowry Air Force Base identified no problem resulting from the planned construction at the locations identified. However, the Base Environmental Health Services is required to evaluate plans for any food facility on base to avoid costly changes that may be required according to Air Force Sanitation standards.

OTHER COORDINATION

The U.S. Fish and Wildlife Service and Colorado Division of Wildlife did not respond by letter to the scoping comments. However, these agencies were contacted by telephone and in person to determine whether they had any specific concerns with respect to fish and wildlife resources. Based on the results of a Corps of Engineers' site survey and professional knowledge of the project area, personnel from those agencies identified no fish and wildlife resources of concern that could be affected by the proposed actions. It was agreed that documentation of telephone and personal communications with these agencies and the Corps was

sufficient for purposes of compliance with the Endangered Species Act and the Fish and Wildlife Coordination Act.

The results of the cultural resources investigation were sent to the Colorado State Historic Preservation Officer (SHPO). No comments have been received to date; however, the SHPO determination of potential effects is expected prior to release of the Final EA.

ALTERNATIVES INCLUDING THE PROPOSED ACTION

INTRODUCTION

As stated in the Base Closure Act, in applying the provisions of the National Environmental Policy Act of 1969, the need for closing or realigning a military installation or transferring functions to another military installation shall not have to be considered when these actions have been selected by the Commission. Alternative military installations to those selected also do not need to be considered. The only required alternative analysis is that associated with reasonable alternative ways to implement the Commission recommendations. The only alternatives discussed here are alternate sites of required facilities to implement the realignment of training missions from Chanute AFB to Lowry AFB.

DESCRIPTION OF THE PROPOSED ACTION

Lowry Air Force Base will absorb 45 courses including missile support-equipment maintenance, intercontinental ballistic missile maintenance-officer, and cryogenic-operations training. Nearly 500 permanent personnel would be added to the base, including 318 military and 170 civilian. All incoming military personnel would be housed off-base initially, and 75 percent of the civilian personnel to be added is expected to be hired from the local area. The additional student load would be about 730; all of these would be temporary duty personnel and would be housed on base.

The realignment would require the construction of new facilities and the alteration of or addition to existing facilities on the base. Figure 1 shows the location of the base with respect to the Denver metropolitan area, and Figure

2 is a map of the base that shows the sites of the planned construction.

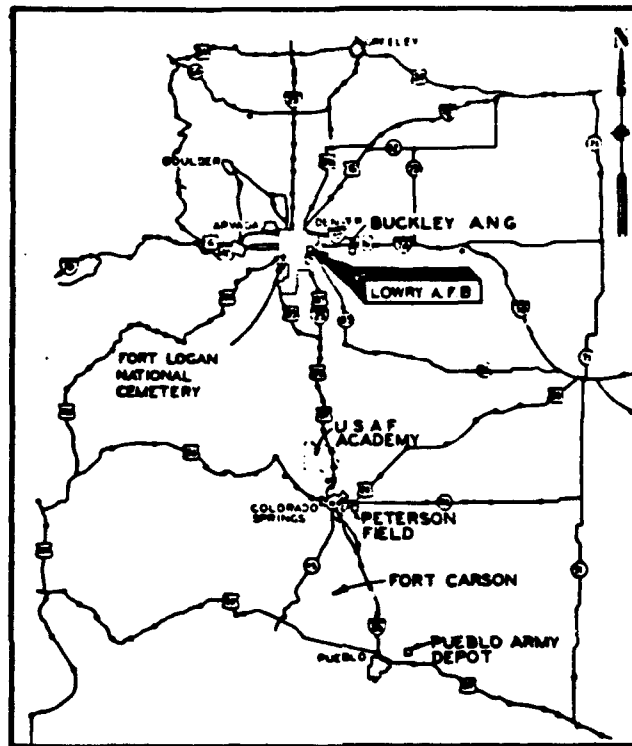


Figure 1. VICINITY MAP
NO SCALE

The Base Closure/Realignment Site Survey Team recommended the following.

TRANSPORTATION TRAINING FACILITY

It is planned to construct a new addition and make alterations to Building 402 (number 1 on Figure 2) to house vehicle maintenance training. About 110,500 square feet of the existing building would undergo alterations, while the new addition would take about 88,500 square feet. The work is scheduled to begin in January 1991 and to be completed in February 1993. The estimated cost is \$12.4 million. An alternate location (number 2 on Figure 2) considered for

1. Proposed Vehicle Maintenance Facility
2. Alternate Vehicle Maintenance Facility
3. Proposed Base Supply
4. Proposed Small Missiles Training
5. Proposed Large Missiles Training
6. Proposed Student Dorm/Dining Hall
7. Alternate Student Dorm/Dining Hall
8. Softball Fields

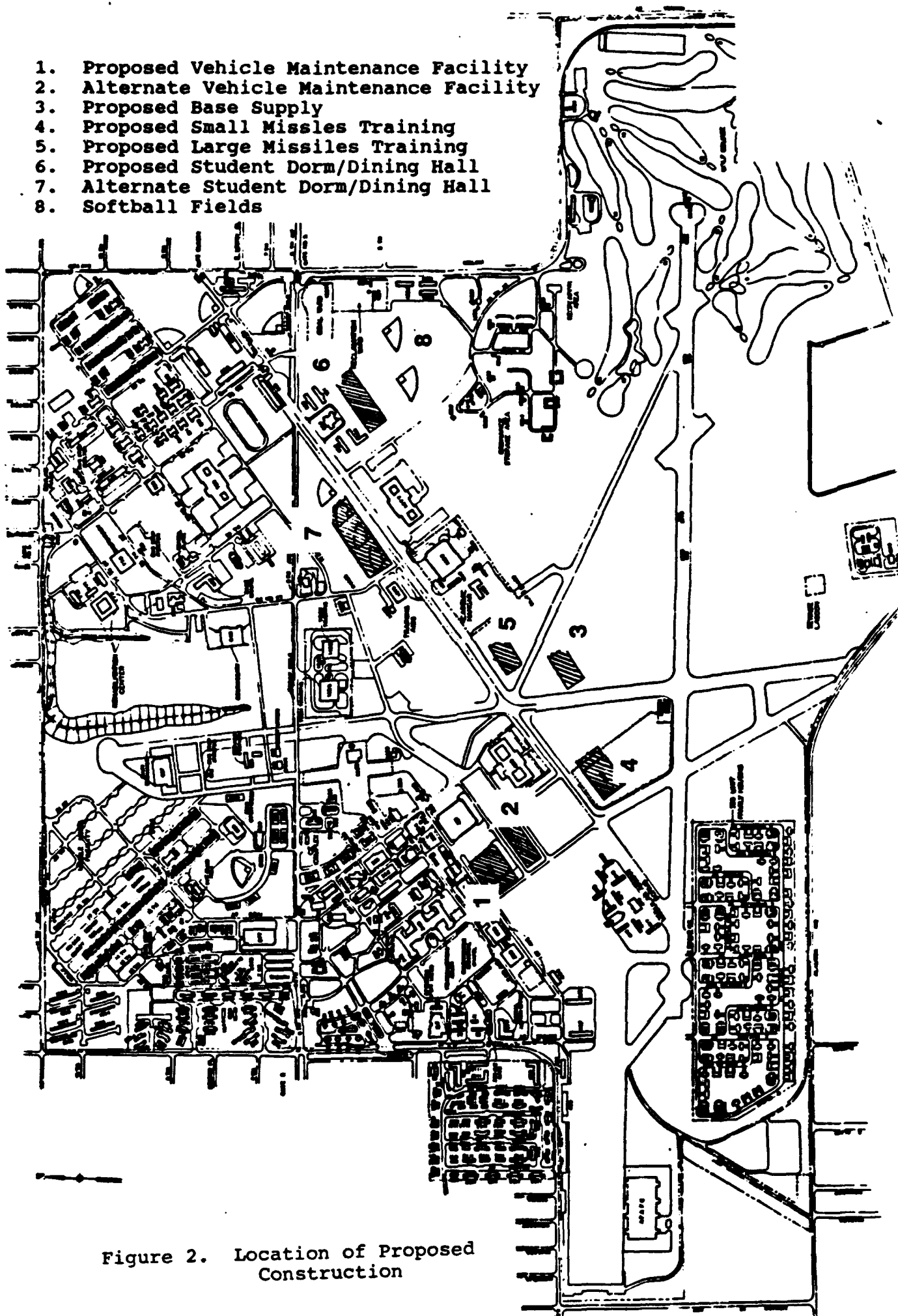


Figure 2. Location of Proposed Construction

this facility would involve the construction of a whole new building.

No additional pavements would be required. For electrical service, water supply, wastewater service, and natural gas, existing connections would be used if possible, and new service would be provided as required.

BASE SUPPLY COMPLEX

This would consist of the construction of a new facility covering 100,500 square feet (see number 3 on Figure 2). The estimated cost is \$7 million, and planned construction start is November 1990. Work is scheduled for completion June 1992.

A parking lot with 90 spaces would be provided. Access would be provided to loading docks. No other pavements would be required. Electrical supply would come from existing facilities. Water and wastewater lines would be designed at a later date.

SMALL MISSILES TRAINING

About 22,500 square feet of existing building 1307 would be altered for this facility (number 4 on Figure 2). Work would start in July 1990 and end in April 1991.

No additional pavement would be needed. Additional water connections, as well as sewer connection, would be required. Electrical, sanitary sewer, water, and natural gas facilities are on-site. The building is near street access.

LARGE MISSILES TRAINING

This facility would consist of a new building measuring 70,600 square feet (number 5 on Figure 2). Construction start is scheduled for December 1990 with completion in March 1993, and the estimated cost is \$17.5 million.

Some additional parking may be required. Electrical power is on-site, and sanitary sewer, water, steam, and natural gas facilities are nearby. Street access is existing.

STUDENT DORMITORY/DINING FACILITY

An enlisted dormitory and dining hall would be constructed with a capacity of 1,000 persons (number 6 on Figure 2). The dormitory would be 200,000 square feet and the dining hall 14,800 square feet. The estimated cost is \$24 million and construction is scheduled to begin in 1990. Completion date is unknown. An alternate location is shown as number 7 on Figure 2.

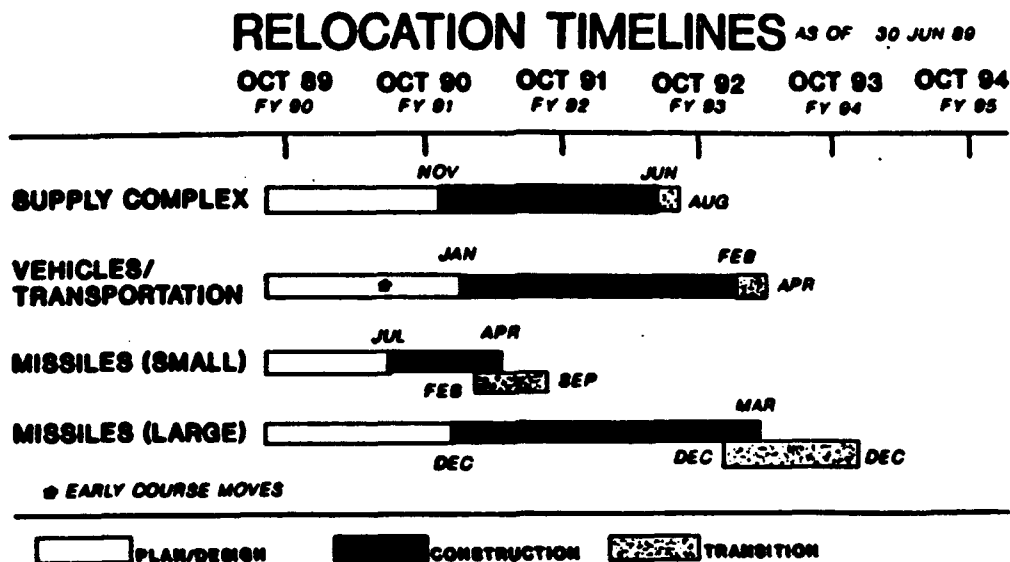
The proposed site is directly over a storm drain which would have to be relocated. A water line would also need to be moved. Steam, natural gas, and electricity are available nearby.

With the alternate site, three softball fields must be relocated (number 8 on figure 2), and the Base Land Use Plan must be modified. All utilities are adjacent to the site.

SUMMARY OF CONSTRUCTION ACTIVITIES

The total cost of the construction associated with this realignment is approximately \$61.6 million. Training courses are scheduled to begin in May 1993, with all planned courses beginning by December 1993. Figure 3 shows the projected timeline for planning and design, construction, and transition activities associated with the realignment.

Figure 3.



AFFECTED ENVIRONMENT

This section describes the existing environmental and socioeconomic setting of Lowry AFB and the surrounding urban areas that may be affected by the activities associated with the proposed realignment.

GENERAL ENVIRONMENTAL SETTING/LAND USE

Lowry Air Force Base is located in the eastern part of the Denver metropolitan area. It is completely encompassed by an urban setting. The physiographic setting is a piedmont, where the Great Plains meet the Rocky Mountains. The dominant natural features at the base and surrounding area are largely the result of human settlement. Climate in the area is typical of a semi-arid high plains environment--seasonal with warm, dry summers and high temperatures in the 90's. Winters vary from mild to severe. Yearly rainfall averages 15.5 inches and yearly snowfall averages 60 inches. Temperature inversions frequently during the winter months resulting in high levels of air pollution.

The base is located in the central portion of the Westerly Creek drainage basin. The creek runs underground through culverts over the majority of the base. Because of intense urbanization, storm water runoff has increased, and as a result, the Corps of Engineers is studying the construction of a dam in the southern portion of the base to provide adequate protection from flooding. The facilities associated with the realignment would not be located near the damsite.

Five natural resource management plans are utilized at Lowry. These include land management, cropland management, wildlife management, outdoor recreation, and landscape development.

VEGETATION AND FISH AND WILDLIFE RESOURCES

Soils of the base are high in minerals and low in organic matter. They vary from clay to clayey loam and loam to sandy loam. Native vegetation of the area is characterized as short-grass prairie with tree growth confined to protected stream valleys. Part of the prairie environment on the base has been maintained for use for agricultural hay cutting. Wildlife known to utilize these

prairie habitats include jackrabbits, field mice, hawks, Canadian geese, and rattlesnakes. No known threatened or endangered species of plants or wildlife exist on base lands.

The proposed construction sites were surveyed by a Corps' biologist on July 7, 1989 to identify environmental resources that might be affected by the realignment activities. Some of the construction sites are within the prairie habitats used for agricultural hay cutting. No prairie dog towns were observed; therefore, it is very unlikely that the endangered black-footed ferret would be found on the base. There are no trees or large shrubs within these prairie sites. Some are mowed, such as the site for the Large Missile Training facility, which is currently used for disaster preparedness training.

There are no wetlands on the base. Aquatic life is essentially nonexistent.

HAZARDOUS WASTES

Hazardous wastes consisting primarily of spent fuels, solvents, and paint-related substances are temporarily stored in a building on the eastern edge of the base. The base has facilities for 90-day storage of these wastes, which are then removed from the base by the Defense Reutilization and Marketing Office of the Defense Logistics Agency. The alternate location for the student dorm/dining facilities would be located near this storage site. The planned relocation site for the ballfields displaced by the proposed siting of the student dorm/dining facilities is also near the hazardous waste storage. There are no radioactive materials on base.

There is an unknown number of underground fuel storage tanks on the base. Most contain jet fuel remnants. No mapping is available, and the ongoing program to retrieve, clean, and dispose of (off-base) these tanks relies upon the memories of long-time employees. Tanks are also being found during other base construction activities. Some of the proposed construction sites may overlie underground storage tanks and may be disturbed during construction activities associated with the realignment.

The Installation Restoration Program (IRP) is a Department of Defense effort to identify, characterize and clean up sites of environmental contamination resulting from

past hazardous waste management practices on military installations. At Lowry AFB, 11 sites have been IRP-identified. They include: a former sanitary landfill; a former fire training area; an area containing underground storage tanks where jet fuel spills occurred; the Auto Hobby Shop where an underground oil storage tank has leaked; a former coal storage yard; a coal storage zone consisting of existing and former coal piles; a flyash disposal site; a former service station containing abandoned underground fuel storage tanks; and two separate sites containing abandoned underground storage tanks. The final phase of the program is in progress for Lowry AFB and consists of continued studies of the sites and development of a remedial action plan for each site. None of the proposed construction sites are within an IRP-identified site.

Several of the older buildings on base contain asbestos. Of the buildings planned for alteration, only building number 402 (proposed location of Vehicle Maintenance) has asbestos-containing materials, and it is a significant amount.

Several environmental protection plans and programs have been implemented at Lowry AFB. In addition to the Installation Restoration Program, they include: Hazardous Waste Management Plan; Management of Recoverable and Waste Liquid Petroleum Products Plan; Spill Prevention and Response Plan; Resource Recovery and Recycling Program; Air Pollution Episode Action Plan; Air Pollution Inventory; Drinking Water Surveillance Program; Surface Water Quality Program; Radiation Protection Program; Radon Assessment and Mitigation Program; Asbestos Abatement Program; and Polychlorinated Biphenyls (PCB) Management Program.

CULTURAL RESOURCES

A preliminary reconnaissance study was undertaken by a Corps of Engineers' archeologist to determine the potential eligibility of the proposed construction sites to the National Register of Historic Places. This study included a brief visual examination of the range of all the sites and an intensive pedestrian cultural resources survey of a portion of all sites. Five sites include construction of new buildings, two sites involve alteration of existing structures, and the other site involves the possible construction of baseball fields. Alteration of the ground surface at all sites by past and present activities

associated with the base mission and agriculture appears to be very extensive. The possibility of cultural resources remaining in an undisturbed context at these sites is very low. The buildings which may be altered appear to have been constructed relatively recently and consequently are not individually eligible to the National Register of Historic Places. The Colorado State Historical Society considers that Lowry Air Force Base as a whole may be eligible to the National Register.

Historic Places on base include Eisenhower Chapel (Building 27), which is included in the National Register of Historic Places; and Former Air Force Academy (Buildings 901, 903, and 109. Buildings that are noteworthy from an architectural view include the Administration Headquarters (Building 349) and Officers Housing (Series 200 Buildings). Other buildings less noteworthy but which provide interest and a sense of heritage to the base include the Steam Plant (Building 361); the Fire Station (Building 357); the Red Cross (Building 259); 1000-Men Dorms (Buildings 400, 700, 900, 1400, and 1477); the Administrative Uses (Building 379); and Technical Training (Building 380).

AIR QUALITY

Lowry AFB is located within the Central Front Region which consists of Adams, Arapahoe, Boulder, Clear Creek, Denver, Douglas, Gilpin, and Jefferson Counties. The area has a population of 1,891,632 (1989 estimate), most of which lives and works in the Denver-Boulder area. This area is the most densely populated in the state. The land is prairie to the east, with portions of Douglas, Jefferson, and Boulder Counties being mountainous. All of Clear Creek and Gilpin Counties are mountainous.

Air pollution is monitored in many areas around this region. A complete list of monitoring sites and pollution levels measured can be found in the Colorado Air Quality Data Report, 1987. A summary of the highest values measured of carbon monoxide, total suspended particulate, and PM10 are presented in table 8. Particulate matter is the term given to the tiny particles of solid and semi-solid material found in the atmosphere. Particles ranging in size from less than 0.1 micrometer to 50 micrometers are called total suspended particulates (TSP). Those 10 micrometers or smaller are called PM10 and are included in measurements of TSP. The Denver area has had violations of carbon monoxide and TSP, as

shown in the table below, which summarizes the highest values measured in the area. Adams, Arapahoe, Boulder, Denver, and Jefferson Counties are monitored for carbon monoxide, TSP and PM10. Douglas County is also monitored for TSP.

Table 1
Summary of 1987 Air Quality in Denver Region

	<u>Averaging*</u> <u>Times</u>	<u>Standard</u>	<u>Counties w/</u> <u>Violations</u>	<u>Value**</u>
Carbon monoxide	1 hour	35 ppm	Denver	36.9 ppm
	8 hours	9 ppm	Adams	15.6 ppm
TSP	24-hour primary	260 ug/m ³	Denver/Adams	502 ug/m ³
	annual	75 ug/m ³	Arapahoe	119 ug/m ³
PM10	24-hour	150 ug/m ³	none	121 ug/m ³
	annual	50 ug/m ³	none	46 ug/m ³

* For 1-, 3-, 8-, and 24-hour averaging times, the second highest concentration is used because the current working the standards allows the highest value at each site to be ignored due to unusual meteorological conditions.

**Measured value to compare to standard.

Air pollution comes from a wide variety of industrial sources throughout these counties. The major sources include power plants, oil refineries and gasoline storage terminals or transfer stations, mining activities, chemical plants, cement plants, and various agricultural operations. In addition to these sources, substantial emissions occur as a result of motor vehicle activity and wood burning.

The State Implementation Plan (SIP) for Denver identifies the actions being taken to reduce air pollution. Some measures include transportation controls, ride-sharing, transit improvements, the Better Air Campaign, the AIR Program, and State regulation enforcement (Report to the Public 1988, Colorado Department of Health).

SOCIOECONOMICS

Lowry AFB currently employs 5,815 military personnel, 5,457 civilian personnel, 286 ROTC (Encampment), and 6,199 dependents of military personnel. About half of the military and all civilian personnel live off-base. In addition, 18,091 military retirees reside in the local area.

Adams, Arapahoe, Denver, Douglas, and Jefferson Counties make up the Denver Primary Metropolitan Statistical Area (PMSA), which is defined by the U.S. Department of Labor. This PMSA is considered the area of impact for the purposes of this assessment.

POPULATION

Population data and projections for the area surrounding Lowry AFB (Denver PMSA) are presented below in table 2. The Denver PMSA has constituted approximately 49 percent of the population of the entire State of Colorado since 1960, and its population has nearly doubled between 1960 and 1988.

Table 2
Population of the Denver PMSA
1960 to 2000

<u>Year</u>	<u>Denver PMSA</u>	<u>Colorado</u>
1960	859,945	1,753,947
1980	1,428,839	2,889,964
1988 (estimated)	1,625,111	3,301,458
1990 (projected)	1,683,047	3,414,949
2000 (projected)	1,954,322	3,952,085

Source: State of Colorado Demographer's Office

EMPLOYMENT

Colorado's principal industries are manufacturing, tourism, agriculture, and aerospace. Tourism is a major industry with an income of \$4.5 billion in 1986.

LABOR FORCE AND ECONOMY

Labor force distribution in the Denver PMSA is very similar to that of Colorado as a whole, as shown in table 3.

Table 3
1986 County Business Patterns

<u>Industry</u>	<u>Employment</u>	
	<u>Colorado</u> (number/%)	<u>Denver PMSA</u> (number/%)
Farm Workers (BEA)	43,354 (2.9)	4,015 (0.5)
Ag. Services, Forestry, Fishing and Other	7,133 (0.5)	4,471 (0.5)
Mining	32,516 (2.1)	17,819 (2.1)
Contract Construction	81,448 (5.2)	46,529 (5.3)
Manufacturing	193,153 (12.4)	105,026 (12.1)
Transportation and Other		
Public Utilities	86,445 (5.5)	64,814 (7.5)
Wholesale Trade	81,158 (5.2)	57,740 (6.7)
Retail Trade	277,491 (17.7)	149,839 (17.3)
Finance, Insurance and Real Estate	101,618 (6.5)	66,613 (7.7)
Services	340,233 (21.8)	203,631 (23.5)
Government (BEA)	314,934 (20.2)	145,733 (16.8)
Total	1,559,483 (100.0)	866,230 (100.0)

Sources: (1) National Planning Data Corporation, Enhanced County Business Patterns, 1986, derived from Bureau of the Census, County Business Patterns, 1986.
(2) Bureau of Economic Analysis (Agriculture and Government).

The Denver PMSA's economy has reflected the small recession which impacted the Colorado economy beginning in 1986. During 1988 there were definite signs of an improvement in the economy as evidenced by the decrease in the unemployment rate. There is too little data on 1989 unemployment rates to determine an annual average. In the first quarter of 1989, however, the unemployment rates were lower than they were in the first quarter of 1988, showing a continuing positive trend in the economy (see table 4).

Table 4
Labor Force Profile
Denver PMSA

Annual Average	Civilian Labor Force	Employment		Unemployment	
		Number	Rate (%)	Number	Rate (%)
1987	881,716	818,581	92.84	63,135	7.16
1988	879,328	827,181	94.07	52,147	5.93
1989					
January	865,127	808,046	93.40	57,081	6.60
February	862,147	803,853	93.24	58,294	6.76
March	848,700	791,924	93.31	56,776	6.69

Source: Bureau of Economic Analysis, Regional Economic Information System, April 1988

Table 5 presents the total projected employment for the Denver PMSA for selected years to 2000. The table also presents the corresponding figures for the construction industry and for Federal civilian and military employment.

Table 5
Employment by Place of Work, by Industry
1983 and 1990-2000 Projected
Thousands of Jobs

	<u>1983</u>	<u>1990</u>	<u>1995</u>	<u>2000</u>
PMSA Total Jobs	873.4	1,062.8	1,190.8	1,301.6
Construction Jobs	56.2	68.0	72.9	77.4
Federal Civilian	30.5	31.7	32.5	33.2
Federal Military	18.5	18.5	18.5	18.5

Source: Bureau of Economic Analysis

Housing. The housing stock in the Denver PMSA has increased substantially to accommodate the population growth in the past two decades. Housing stock estimates from the Statistical Abstract of Colorado (1987) indicate that 47 percent of the housing units in Colorado are located in the Denver PMSA. Table 6 presents the 1980 housing units by vacancy status and table 7 presents the number of total households.

Table 6
Number of Housing Units by Vacancy Status
1980

	<u>Year-round Housing Units</u>		
	<u>Total</u>	<u>Occupied</u>	<u>Vacant</u>
Colorado	1,194,253	1,061,249	107,432
Denver PMSA	571,604	539,438	36,465

Source: Statistical Abstract of Colorado, 1987.

Table 7
Total Number of Households

	<u>1970</u>	<u>1980</u>	<u>1989</u>	<u>1994</u>
Denver PMSA	354,274	539,438	656,627	692,790

Source: CERL, Bureau of the Census

SCHOOLS

The majority of school-age dependents of military and civilian personnel assigned to Lowry AFB attend schools in one of nine area school districts: Denver School District, Douglas School District, North Glen-Thorton School District #12, St. Vrain School District, Boulder Valley School District, West Minster School District #50, Cherry Creek School District #5, Littleton School District #6, or Adams/Arapahoe (Aurora) School District #8. The school districts and their enrollment levels are listed below in Table 8. All districts are currently under capacity.

Table 8
School District Enrollments
1988-1989

<u>School District</u>	<u>Number of Students</u>	<u>Capacity</u>	<u>Student/Capacity Ratio</u>
Denver	58,676	91,947	.64
Douglas	11,230	14,225	.79
St. Huron	14,600	16,549	.88
Boulder Valley	20,496	*	*
North Glen-Thorten	20,601	22,940	.90
Cherry Creek	27,000	42,000	.64
Littleton	15,194	18,358	.83
Aurora	24,388	*	*
West Minster	10,454	17,000	.61

*No available.

TRAFFIC AND TRANSPORTATION

Lowry AFB is surrounded by eight major roadways: Alameda, 6th Avenue, Dayton, Quebec, Quince, Yosemite, 11th Avenue, and Irvington. Peak 24-hour period traffic counts for the five major intersections around Lowry AFB are presented in table 9 below.

Table 9
Peak Period Traffic Counts

<u>Intersection</u>	<u>Capacity</u>	<u>Peak 24-hour Period</u>
6th Avenue and Dayton	55,000	12,119
6th Avenue and Quebec	55,000	7,883
Alameda and Quince	55,000	13,692
Yosemite and 11th Avenue	40,000	4,407
Quebec and Irvington	40,000	3,715

Alameda and 6th Avenue are four-lane arterials. 11th Avenue, Dayton, Quebec, Quince, Yosemite and Irvington are two-lane arterials. Capacity of a four-lane signalized arterial has been estimated at 35,000 vehicles per peak

24-hour period. Capacity of a two-lane signalized arterial has been estimated at 20,000 vehicles per peak 24-hour period (State of Colorado Highway Department). All intersections are currently under capacity.

ENVIRONMENTAL CONSEQUENCES

ENVIRONMENTAL RESOURCES

This section presents a brief discussion of the potential impacts of the proposed action on the natural resources of the base or other affected areas. No significant impacts have been identified.

LAND USE

The proposed construction was evaluated for conformance with the Lowry Air Force Land Use Management Plan when the sites were selected by the Planning Assistance Team. All sites and facilities, with the exception of the possible relocation of the softball fields, are in conformance with the Land Use Plan. If the softball fields are relocated, the Land Use Plan would need to be modified.

VEGETATION AND FISH AND WILDLIFE

Construction activities for three of the planned facilities would result in disturbance to and destruction of the few open prairie-type areas left on the base. These areas have been frequently disturbed by mowing activities, and although they provide some wildlife habitat, no vegetation or wildlife of importance would be affected.

No threatened or endangered species are known to utilize habitats on the base. The likelihood of black-footed ferrets being present is very low due to the absence of any prairie dog colonies.

No aquatic resources would be affected. This includes wetlands.

HAZARDOUS WASTES

Some hazardous wastes are expected to be generated as a result of the additional training mission. For vehicle and

transportation training, flammable materials such as fuels, oil, and hydraulic fluids would be generated. In addition, materials containing asbestos (brake linings) would be used and disposed of. The new Supply facility would also generate some hazardous wastes (e.g., industrial solvents).

The base currently stores hazardous wastes for 90 days, when they are then removed by the Defense Reutilization and Marketing Office. For the present level of wastes generated by the base, the temporary storage space is adequate. Whether the capacity exists to handle the additional wastes generated as a result of the additional mission is unknown, as the base officials could not make a determination until the amount of new wastes was known. If the capacity is found to be not sufficient, additional storage space may need to be designated, or the period of temporary storage shortened. The base complies with the appropriate regulations applicable to hazardous wastes.

Building 402, which will be remodeled, contains a significant amount of asbestos. Any construction which may uncover or disturb asbestos is accomplished in compliance with OSHA and EPA regulations.

CULTURAL RESOURCES

None of the construction areas appear to contain material or is near a site that is eligible to the National Register of Historic Places. These project areas are located within a district, Lowry Air Force Base, that may be eligible to the National Register. Consequently, implementation of the project may result in an adverse effect on a potential National Register District. The results of the cultural resources investigation have been submitted to the Colorado State Historic Preservation Officer. No response has been received to date; however, a determination of effect is expected prior to the preparation of the Final EA.

SOCIOECONOMICS

This section presents a brief discussion of the socioeconomic impacts to the areas that may be affected by the proposed realignment activities at Lowry AFB. The Construction Engineering Research Laboratory's Economic Impact Forecast System (EIFS) forecast models were used to determine impact values for population, housing, employment, and school districts. Information was also obtained directly

from Lowry AFB for the above resources, as well as for determining traffic impacts. The Denver Regional Council of Governments supplied the handbook for assessing air quality impacts.

Levels of impact were assigned as negligible, low, moderate, and high. Annual increases of 10 percent or more to a community's population were judged to cause a high impact (President's Economic Adjustment Committee, 1981; Hammer, Siler, George Associates, 1982; U.S. Department of Energy, 1978). Conversely, impacts would be negligible when the population change is less than 1 percent.

A low impact criterion has been defined for this report: increases in community populations of 1 to 5 percent over projected baseline levels. At this level, the proportionate increases in housing demand, school enrollments, public service demands, and local government expenditures would be generally within normal growth patterns and require little response by affected communities.

GROWTH AND HOUSING

Methodology. The impacts to growth and housing were identified by entering the number of persons directly involved in the realignment into the EIFS model. Data from the Bureau of Economic Development, Bureau of Economic Analysis and Regional Economic Information System, April 1988, provided projections in population, employment, and the number of dwelling units which could then be compared to the estimates of changes due to the realignment.

Significance Criteria. The impacts to housing, employment, and population were considered significant if the change due to the realignment was greater than 5 percent of the total change projected.

Impacts of the Proposed Action. The impact on population growth anticipated by the State of Colorado Demographer's Office is presented below in Table 10.

Table 10
Population Forecasts for the Denver PMSA

	<u>1980</u>	<u>Estimated</u> <u>1988</u>	<u>Projected</u> <u>1990</u>	<u>Projected</u> <u>2000</u>
Without Realignment	1,428,839	1,625,111	1,683,047	1,954,322
With Realignment	1,428,839	1,625,111	1,683,951	1,955,226

Source: State of Colorado's Demographer's Office.

After realignment, the total change in population in the Denver PMSA is expected to be 904 persons (318 military and 170 civilian personnel and 416 dependents). This is less than 1 percent of the total population projected for the years 1990 and 2000. Therefore, impacts to population are not considered significant.

The proposed realignment action would result in an additional demand for 361 housing units (220 rental units and 141 owner-occupied). This represents less than 1 percent of projected baseline changes in the number of households (see table 11 below). Vacant housing units are currently available. The impact on housing would not be significant.

Table 11
Total Households in Denver PMSA

	<u>Estimated</u> <u>1989</u>	<u>Projected</u> <u>1994</u>
Without realignment	656,627	692,796
With realignment	656,627	693,157

Source: CERL, Bureau of the Census

For employment, the impact of the realignment at Lowry AFB would be an increase in the number of people employed in the Denver PMSA. The increase would consist of 488 permanent personnel (318 military and 170 civilian) at the base. During construction of the base facilities between 1990 and 1992, the maximum number of jobs created is estimated at

1,546. This would consist of 274 jobs directly related to construction activities and 1,272 jobs indirectly related to construction. The direct jobs represent 0.6 percent of the total construction jobs in the Denver PMSA, and indirect jobs are 0.2 percent of the Denver PMSA construction jobs.

After realignment, the number of jobs indirectly created by Lowry AFB would be 1,090. The increase in direct jobs would be about 0.1 percent of the total Denver PMSA jobs (1,062,800), as estimated by the Bureau of Economic Analysis for 1990. The relative change in employment is less than 1 percent of the total jobs of the PMSA; therefore, the impact is not significant.

SCHOOL DISTRICTS

Methodology. The impacts to public schools were identified by estimating the number of school-aged children involved in the realignment. The projections of growth in enrollment at the school districts surrounding Lowry AFB were then used to determine the impact to schools from the realignment.

Significance Criteria. The impacts to public schools were considered significant if the change due to the realignment was greater than 5 percent of the total projected change in the measurement criteria.

Impacts of the Proposed Action. The major school districts that provide education for the majority of the dependents associated with Lowry AFB personnel are located in the Denver PMSA. It was estimated that the impact on school districts will be 186 school-aged children added to the area. These children would most likely be attending school in one of the nine school districts previously mentioned. The with- and without-realignment, aggregate enrollment projections are presented below.

Table 12
Aggregate Enrollment of Denver PMSA
School Districts

	<u>Capacity</u>	<u>1989-90</u>	<u>1990-91</u>	<u>1991-92</u>
Without Realignment	223,019+	208,098	210,027	213,089
With Realignment	223,019+	208,284	210,213	213,275

Source: State of Colorado Department of Education, Denver PMSA School Districts

The increase in enrollment due to the realignment is less than 1 percent; therefore, the impact to school districts is not considered significant.

AIR QUALITY

Methodology. The Land/Air Use Quality Assessment Handbook (Denver Regional Council of Governments) was used to determine air quality impacts. With this handbooks, impacts of residential, commercial, office, and mixed-use developments can be calculated as well as the mobile source component of industrial developments. For most developments air pollutants are primarily related to the traffic they generate. Within the Denver area 92 percent of carbon monoxide and 80 percent of the particulate emissions are related to roadways and roadway use.

Significance Criteria. Consistence with National Ambient Air Quality Standards (NAAQS) is determined by calculating the CO increase in an 8-hour average concentration at a midblock location and the CO concentration after implementation of the realignment. This is then compared with the 8-hour NAAQS shown in the Affected Environment Section of this document.

The TSP consistency with the NAAQS is determined by calculating the increase in concentration. If the TSP levels attributable to the project will not exceed 3 ug/m³ annual geometric mean (agm), then the impacts are considered not to be significant under the NAAQS. If the TSP level shows no

violation of NAAQS, then the level of PM 10 is considered not significant.

Impacts of the Proposed Action. Impacts of the realignment on air quality can be determined by calculating the amount of pollutant which will be added to the region. The increase then can be compared to the NAAQS. Analysis was completed according to the Land/Air Use Quality Assessment Handbook. It was determined that the increase of carbon monoxide concentrations at a midblock location due to the project was 0.1 ppm. In comparison with the 8-hour NAAQS of 9 ppm (project ppm - standard ppm; a positive number indicates a violation of the air quality standard), the resulting value is -8.9 ppm, which is not a violation.

The total increase in TSP concentration was also calculated using the assessment handbook and was found to be 0.80 ug/m³. In comparison to NAAQS the TSP increase does not exceed 3 ug/m³ agm and is not a violation. Since the TSP level shows no violation of NAAQS, then it is assumed that the level of PM10 would have no violation also.

Since no violations exist, the impact of the realignment on air quality is not considered significant.

TRAFFIC

Methodology. The methodology used to identify traffic impacts was to estimate the increase in peak 24-hour period traffic flow expected with the proposed realignment and then compare this to the normal capacity of the affected network. It was assumed that the capacity of a four-lane signalized arterial is 35,000 vehicles per peak 24-hour period and the capacity of a two-lane signalized arterial is 20,000 vehicles per peak 24-hour period (State of Colorado Highway Division).

Significance Criteria. An impact is considered significant if the capacity is exceeded by more than 25 percent. This 25 percent increase would correspond to the lower limit of level of service "F" as defined in the National Academy of Sciences Highway Capacity Manual, 1965.

Impacts of the Proposed Action. Traffic at Lowry AFB would be expected to increase because of the proposed realignment. There would be nearly 500 additional people working at the base after the realignment. It is assumed that the new personnel would travel to work from off-base

residences; 2.4 trips/vehicle/day and a carpooling factor of 1.2 persons/vehicle are used. With these above factors, it was determined that there will be 976 addition vehicle trips per peak 24-hour period. In the table below it is seen that none of the intersections to Lowry AFB are at capacity before or after the realignment. Therefore, the impacts are considered not to be significant.

Table 13
Peak 24-hour Traffic Impacts

<u>Intersection</u>	<u>Without Realignment</u>	<u>With Realignment</u>	<u>Capacity</u>
6th Ave. and Dayton	12,119	12,402	55,000
6th Ave. and Quebec	7,883	8,068	55,000
Alameda and Quince	13,692	14,014	55,000
Yosemite and 11th Ave.	4,407	4,405	40,000
Quebec and Irvington	3,715	3,803	40,000



DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 3415TH AIR BASE GROUP (ATC)
LOWRY AIR FORCE BASE CO 80230-5000

REPLY TO
ATTN OF

SGPM (Capt McCall)

7 Jul 89

SUBJECT

New Construction at Lowry Air Force Base

TO Planning Division (MS Candace Thomas)

1. This reply is in reference to your letter dated 26 Jun 89 on Environmental Assessment of the new construction planned for Lowry AFB due to Chanute AFB closure.

2. At this time I see no problem resulting from the planned construction at those locations indicated in your letter. I would like to remind you that Environmental Health Services is required to look at the plans for any food facility (dining hall) that is to be constructed on base. By evaluating the plans we can avoid costly changes that may be required according to Air Force Sanitation standards.

3. I appreciate your letter. If you have any questions I can be reached at AV 926-4286 or CIV 303-370-4286.

Candace L. McCall

CANDACE L. MCCALL, Capt, USAF, BSC
Chief, Environmental Health Services



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION VIII

999 18th STREET - SUITE 500
DENVER, COLORADO 80202-2405

AUG 11 1989

Ref: 8WM-EA

Richard D. Gorton, Chief
Environmental Analysis Branch
Planning Division, DOA
Corps of Engineers
215 North 17th Street
Omaha, Nebraska 68102-4978

Dear Mr. Gorton:

The Region VIII office of the Environmental Protection Agency (EPA) has reviewed your request for scoping comments in the development of an Environmental Assessment (EA) for additional technical training missions to be assigned to Lowry Air Force Base, Colorado.

Based on the type of construction/reconstruction discussed in your letter and the proposed location of additional mission facilities at Lowry Air Force Base, EPA is not aware that any special resources will be affected by the proposed realignment. In the event any nonstandard construction methods are used or the training facilities will produce wastes requiring special handling, the EA will need to adequately discuss possible impacts and proposed mitigation.

This office would appreciate a copy of the EA when it becomes available. Should you have any questions, please contact me or Mike Hammer of my staff at (303) 293-1695 or FTS 564-1695.

Sincerely,

for Mike Hammer

Robert R. DeSpain, Chief
Environmental Assessment Branch
Water Management Division